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**HSIEH**(10) **Pub. No.: US 2013/0075809 A1**(43) **Pub. Date: Mar. 28, 2013**(54) **SEMICONDUCTOR POWER DEVICE WITH  
EMBEDDED DIODES AND RESISTORS  
USING REDUCED MASK PROCESSES****Publication Classification**

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LTD.**, New Taipei City (TW)(21) Appl. No.: **13/246,357**(22) Filed: **Sep. 27, 2011**(57) **ABSTRACT**

A trench semiconductor power device integrated with a Gate-Source and a Gate-Drain clamp diodes without using source mask is disclosed, wherein a plurality source regions of a first conductivity type of the trench semiconductor device and multiple doped regions of the first conductivity type of the clamp diodes are formed simultaneously through contact open areas defined by a contact mask.

